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AUTHOR Aronson, Elliot; And Others
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ABSTRACT

This essay considers how prosocial behavior can be learned in the classroom and whether it can be transferred from this setting to others. It also focuses on two aspects of such behavior which the authors consider important: (1) the development and enhancement of the self-concept; and (2) the development of productive interpersonal relations, including increased attraction, reduced prejudice, and increased empathy. The authors conclude that cooperation and cooperative learning do affect prosocial behavior, and should be given serious consideration by educators and social policy makers. (PFS)

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THE EFFECTS OF COOPERATIVE CLASSROOM STRUCTURE ON PROSOCIAL BEHAVIOR

Elliot Aronson, Diane Bridgeman and Robert Geffner
University of California, Santa Cruz

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THE EFFECTS OF COOPERATIVE CLASSROOM STRUCTURE ON PROSOCIAL BEHAVIOR

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Children learn a great many things in elementary school classrooms. Some of the learnings are explicit: e.g., reading, writing, arithmetic, social studies. Other learnings are implicit: how to relate to other people, an understanding of oneself, etc. It would be advantageous if, in addition to acquiring specific skills and information, children could use the classroom to experience and learn prosocial interactions and learn prosocial behavior. What do we mean by prosocial behavior? Simply stated, prosocial acts can be thought of as behaviors that have positive social consequences, i.e., empathy, sharing, cooperation, donating, helping, etc. In this essay, we will consider how prosocial behavior can be learned in the classroom and whether it can be transferred from this setting to others. We will also focus on two aspects of prosocial behavior which we consider important. First, the development and enhancement of the self concept; and second, the development of productive interpersonal relations, including increased attraction, the reduction of prejudice, an increased empathy, etc.

Self-Esteem: Theoretical Perspectives

A person's self-concept generally consists of all the attitudes, abilities and assumptions an individual holds concerning him/herself which act as a guide for behavior (Coopersmith and Feldman, 1974; LaBenne and Greene, 1969). One aspect of self-concept that is important in educational research is self-esteem. It is usually considered to be the evaluative component of self-concept. Coopersmith

(1967) defines self-esteem as the amount of worthiness an individual perceives in him/herself. Where does a person find evidence about his or her own worthiness? Cooley (1902) believed that an individual's self-esteem reflected the real or imagined appraisals of others (i.e., the "looking glass self"). This emphasis on social comparison processes has been an important aspect of many theories concerning the development of self esteem (e.g., Mead, 1934). Snygg and Combs (1949) presented a more phenomenological view; they emphasized how a person acts as a result of the perceptions of oneself and the situation at the time.

Thus, one major conception of self-esteem has been the amount of self-worth an individual comes to perceive in him/herself as a result of interpersonal interactions with relevant others, such as family members, teachers, and friends. Over forty years ago, Mead (1934) suggested a "multidimensional self" which consisted of home attitudes, school attitudes, and social attitudes. More recent investigators have also presented such a view of self-esteem (Crandall, 1973; Gergen, 1970), and research involving factor analyses or other conceptual breakdowns seems to indicate that self-esteem is probably multidimensional (e.g., Bailey, 1970; Stanwyck and Felken, 1971). As far as the source of self-esteem is concerned, two factors seem vital: One factor, "outer" or "external" self-esteem, involves the reflected appraisals of relevant others, while the second factor, "inner" or "personal" self-esteem, involves personal experiences, accomplishments and abilities (Coopersmith and Feldman, 1974; Franks and Marolla, 1976). Inner self-esteem seems to be derived from the feedback we receive when interacting with the environment. Thus, it has been suggested

that there is a social self-esteem acquired somewhat passively from interacting with other people, and a personal self-esteem concerning our confidence in our abilities acquired from more active interaction with physical objects, etc. However, these dimensions are not mutually exclusive; they may overlap as well as interact with each other.

In education, these two dimensions of self-esteem develop from a child's interpretation of the feedback from teachers and classmates as well as from his/her own learning experiences. Attribution theory has a good deal of relevance in this situation. Basically, the proponents of attribution theory state that people will go beyond the available information in order to try to explain the causes of someone's behavior - even their own (Heider, 1958; Jones and Davis, 1965). In general, when viewing her own behavior, an individual will make dispositional attributions to explain her successes (i.e., success was due to my ability), and situational attributions in trying to explain her failures (i.e., failure was due to poor lighting). Thus, our self attributions generally protect our self-esteem. In the classroom, then, a student who performs well would probably attribute this to his personal ability, knowledge, intelligence, etc., and this would enhance the student's inner self-esteem. Indeed, Covington and Beery (1976) report that success-oriented students generally make dispositional attributions when they perform well, and they usually attribute failure to a lack of effort. In addition, there is substantial evidence that students with high self-esteem generally have high achievement levels in school (e.g., Brookover, Thomas and Patterson, 1964). In summaries of the research in this

field, Covington and Beery (1976) and Purkey (1970) suggest that high self-esteem leads to better achievement, and conversely that high performance leads to high self-esteem. It appears that the positive experiences, dispositional attributions, higher expectations, and anticipated successes are all involved in self-fulling prophecies (e.g., Rosenthal and Jacobson, 1968) which lead to improved self-esteem and subsequently to higher achievement levels in school.

What happens when a child experiences failure? Covington and Beery (1976) state that the lack of successful experiences and the scarcity of rewards in the classroom can lead some students to learn to expect failure. These students give up and stop trying to succeed: low self-esteem and low achievement are maintained through negative self-fulfilling prophecies. In these cases, it appears that the students make situational attributions (e.g., luck) for the few successes they might have, and dispositional attributions for their failures (e.g., poor ability and low self-worth). These same types of attributions are often made by classmates and even by some teachers with regard to those students who are failing in school. Thus, the interactions among students can also lead to these self-defeating self-fulfilling prophecies.

One possible reason for this situation is the traditional system of education which emphasizes competition among students and exacts high performance partly by instilling students with a fear of failure. This competitiveness in schools produces a situation where there are "winners and losers," which often leads to low self-esteem for the "losers," once they begin to internalize the failures (Coopersmith and Feldman, 1974). This virtually guarantees continual low achievement -

creating a vicious circle. It would seem obvious that our educational system needs to be changed in order to promote a breakout from this cycle of negative self-fulfilling prophecies. If possible, the system should be modified to promote situations where all students can have successful experiences that will build their self confidence and self-esteem (Covington and Beery, 1976; Johnson, 1970).

One method that can be used to accomplish positive outcomes for students is to change from a competitive to a cooperative environment in the classroom. In a cooperative interaction, the emphasis is on all participants working together to accomplish a mutual goal. The production of "losers" is virtually eliminated in this environment. Thus, under these circumstances it is likely that the students will experience greater success as well as an increase in support from their classmates which is inherent in the process of cooperation. As these phenomena occur, they will almost certainly produce an increase in self-esteem. Again, this occurs as a function of the positive feedback received from group members, and the skills and abilities gained by the members when they help teach their classmates. There is some evidence to support these conjectures. For example, research at the elementary school level (Phillips and D'Amico, 1956), at the junior high school level (Gottheil, 1955), and at the college level (Deutsch, 1949) has indicated that cooperation leads to increased liking and better relations among the group members.

Cooperation and Academic Performance

While it is clear that cooperative techniques can produce better interpersonal relations, its effect on academic performance is still equivocal. Some studies show that where students teach each other

(peer tutoring), both "tutors" and "pupils" improve in their academic abilities; the tutors also show improved self-esteem and more confidence in their skills (Cloward, 1967; Lippitt and Lohman, 1965). Other research has shown that competition can have a beneficial effect on performance at least in adults. Interestingly enough, this was the major finding of one of the earliest experiments ever done in social psychology (Triplett, 1898). Moreover, some innovative procedures, while making students happy, have produced decreases in performance. Indeed, recent reports (Chalupsky and Coles, 1977) indicate that studies of most general innovative classroom procedures are not associated with maintained or improved academic achievement. In addition, there are well founded reports that some students are graduating from high school without being able to read and write. It is little wonder, then, that a "back to basics" phase in education may well overshadow newly emerging research that examines not only specific types of innovations but also social variables involved in classroom learning.

What is clear from the conflicting evidence is that not all innovations are helpful and that some can be detrimental. Whether results are beneficial depends upon the precise nature of the innovation as well as the skill and attitude of the teacher. For example, a "laissez-faire" unstructured innovation may provide students with feelings of freedom and creativity but is probably not conducive to learning. Effective classroom learning requires a creative teacher who allows students to take responsibility for their learning while providing a stimulating structure within which to do so.

Interdependent Learning (The Jigsaw Method)

Recently, Aronson and his colleagues (Aronson, Blaney, Sikes, Stephan and Snapp, 1975) have developed a technique for classroom instruction that has attempted to incorporate the beneficial features of cooperation and peer teaching into a highly structured atmosphere of the more traditional classroom. Dubbed the "jigsaw" technique, it is a method of learning which, by its very nature, requires the students to work together and teach each other so that the students must depend on each other to accomplish their goals. It is a situation where beating the other person has no payoff; rather, the students are reinforced for helping one another. Moreover, the jigsaw structure requires the students to utilize one another as resources rather than to depend on the teacher as the major provider of information - a state of affairs that is the hallmark of the traditional classroom. The students also reinforce one another - instead of allowing the teacher to be the sole provider of the rewards in the classroom. Since all students participate, it was predicted that even students with low self-esteem would begin having successful experiences and would, as a consequence, begin to realize that they, too, have abilities and talents. Thus, theoretically, in this highly structured process, the cycle of negative self-fulfilling prophecies would begin to break down. Further it was expected that the other students who had considered the "failure" students as having little ability and worth would come to realize that their perceptions may have been in error. Thus, the jigsaw structure would encourage the students to change from making dispositional attributions for failure and situational ones for success to the more ego-enhancing attributions.

Let us look at the jigsaw process in some detail. Basically, the jigsaw paradigm is a synthesis of small group dynamics and social interaction principles. In this model students are placed in small groups of five or six, where each student in the group is given one segment of the day's lesson and is responsible for teaching it to the other members of the group. The process resembles the assembling of a jigsaw puzzle. Since the other members have no other access to this information, interdependence is established. In a typical classroom there are five groups of six students. That means that there are five students (one from each group) who have the same segment of information. In order to assist the students in transmitting their information to the members of their "jigsaw" group, those students (one from each group) meet as a "counterpart" group. The counterpart group precedes the jigsaw group and serves as a vehicle for assisting students to master the material for presentation to their jigsaw group by helping them put their segment of the material into their own words, to exchange ideas of presentation, and to anticipate the types of questions which the members of the original group might ask. After they return to their jigsaw group, students are encouraged by the teacher, who serves as a facilitator and sets an example of cooperative behavior. Thus, the situation, by its very nature, induces children not only to imitate and model skills of group dynamics and social interaction, such as listening carefully and asking good questions, but also requires them to integrate these skills cognitively in their interactions with fellow group members.

It is the element of structured interdependence which makes this a unique and powerful learning process. By temporarily assuming the role of teacher, each student becomes a valuable resource for the others. Learning from each other gradually diminishes the need to try to outlearn each other because one student's learning enhances the learning of the other students instead of inhibiting it. In the cooperative paradigm the classroom teacher learns to be a facilitating resource person where, instead of lecturing to students, he or she shares in the learning and teaching process with the students. Rather than being passively dependent on the teacher as the sole human resource, each student is required to be an active participant and to be responsible for what he or she learns.

For simplification purposes, we have presented an overly glossy picture of how the jigsaw process functions in the classroom. Not all of our endeavors have run smoothly. Not all students easily adapt to a cooperative classroom. Some students are poor readers, some students use English as their second language, and some students prefer to work alone. Such situations present serious problems - but with the aid of a little ingenuity on the part of the teacher, they are not unsolvable. In most cases the teacher has been able to find a way to turn some of these difficulties into strengths. To take one example, the poor reader or bilingual student can be encouraged to use his or her classmates as helpful models. The counterpart section of the jigsaw format allows such students to view the way a more experienced or more articulate student formulates his or her thoughts and ideas so that active modeling, feedback, and then rehearsing of material to be presented can take place.

Moreover, as one might expect, children who have spent several years in a competitive classroom situation do not switch immediately to a cooperative strategy as soon as the jigsaw technique is implemented. The first two or three weeks frequently involve a slow and painful transition marked by occasional regression to competitive behavioral strategies such as "put-downs," name-calling and other derogating acts. But invariably the students gradually learn that these strategies do not pay off and gradually cooperative behavior comes to predominate.

The cooperative, interdependent learning process illustrates that encouraging a cooperative environment is not antithetical to providing a guiding structure where expectancies are flexible yet clear. Many proponents of this innovation support stressing the basics in education. One advantage of the process is that it is not dependent on a specific curriculum. The jigsaw paradigm has been successful utilizing the same curriculum as more traditional classrooms or with a curriculum which is more specifically humanistic, thus enhancing and reflecting the process involved. But does it work? Does it produce the kinds of prosocial behavior discussed early in this essay?

It is relatively easy to assess the extent to which students attain this integration of shared knowledge: by observing the student groups; by having discussions and asking pertinent questions about the material afterward; by giving essay-type questions that cover everyone's part in the curriculum; or, more traditionally, by giving standard quizzes and tests at the end of each week of cooperative group learning.

Research on the Jigsaw Technique

The first systematic experiment to investigate the effects of the jigsaw technique on students' self-esteem, liking for school, and liking for each other was conducted by Blaney, Stephan, Rosenfield, Aronson and Sikes (1977). The schools in Austin, Texas, had recently been desegregated, producing a great deal of tension which was apparently being exacerbated by the competitive atmosphere existing in most classrooms. The jigsaw technique was introduced in ten fifth grade classrooms in seven elementary schools. Three classes from among those same schools were also utilized as controls for this study. The experimental classes met in jigsaw groups for about 45 minutes a day, three days a week for six weeks. Each jigsaw group consisted of approximately three Anglos, one Black, and one Mexican American student. The curriculum was basically the same for the experimental and control classes.

A questionnaire was designed to assess students' attitudes toward school, their attitudes about themselves, and their attitudes concerning cooperation and peer teaching in their classrooms. In addition, a sociometric instrument was used to assess the students' liking for their group members and their liking for the remaining students in the class. These two measures were administered before the experiment had begun and again at the conclusion of the six-week period.

To assess liking for school, the responses to three questions were summed; these questions were: "How much do you like school this year?", "When you are in the classroom, how happy do you feel?", and "When you are in the classroom, how bored do you feel?" Significant results were obtained for this measure. Blaney, et al (1977)

found that Anglo students in jigsaw classes increased in their liking for school while control Anglos decreased in their liking for school. The Black students in the jigsaw classes decreased somewhat in their liking for school, but the control Blacks decreased substantially. However, the Mexican American students in control classes improved substantially in liking for school, while the experimental Mexican Americans increased only slightly. The researchers speculated that these latter results may have been due to language barriers faced by the Mexican American students in the jigsaw groups when they were "forced" to participate in the peer teaching.

The self-esteem of the students was measured by summing the responses to four of the attitude questions: "How much do you like being yourself?", "When you are in the classroom, how important do you feel?", When you are in the classroom, how smart do you feel?", and "When you are in class, how often do you feel you can learn whatever you try to learn? In general, the results indicated that the experimental subjects significantly increased in self-esteem while the control subjects decreased.

Two other questions also produced significant differences between the jigsaw and control classes. The jigsaw students decreased in "wanting to beat a classmate at schoolwork" while the control students increased in this type of competitiveness. The students in the jigsaw classes also increased in feeling that "they could learn from their classmates" while the responses of the students in the control classes decreased for this question.

The sociometric instrument also yielded significant findings. Blaney, et al, reported that the students in the jigsaw groups did come to like their group members significantly more than the other students, but they increased their liking for their other classmates, too. These findings are important because increased liking for a student is a first step to the student being accepted and given support by his/her classmates. According to Coopersmith and Feldman (1974), this acceptance is a major prerequisite for the development of positive self-esteem. Thus, the overall results of this study were quite positive. Students in jigsaw classrooms liked each other better, increased in self-esteem, and generally enjoyed school more.

But what about academic achievement? To investigate this, Lucker, Rosenfield, Sikes and Aronson (1977) designed an experiment to determine the effects of the jigsaw technique of interdependent learning on academic performance for fifth and sixth grade students. Since self-esteem and liking improved with the use of the jigsaw, it was hypothesized that achievement levels would also improve. Therefore, six classrooms were taught with the jigsaw method for two weeks while five classrooms were taught in a traditional manner and were the controls for this experiment. Achievement tests were administered to all students before and after the jigsaw was instituted in the experimental classrooms.

The analyses of the data indicated that the students in the jigsaw classes showed significantly more improvement in achievement than the students in the control classes. It appears that these results were mainly due to the increased performance of the ethnic minority students

in the jigsaw classes, especially in comparison to the minority students' performance in the traditional classrooms. Thus, Anglos performed about the same in jigsaw and traditional classes but minority students performed much better with the interdependent teaching method. Lucker, et al, also found that the above results were not related to the particular ability level of the students. In other words, high ability Anglos and minorities benefited as much from the jigsaw technique as low ability Anglos and minorities. Therefore, being in the jigsaw groups did not cause high ability students to decrease in their achievement performance.

Summarizing these field experiments, it appears that students learning in interdependent classes for a few days per week show gains in self-esteem, liking for classmates, and liking for school. In addition, students who might be considered "losers" in many traditional classes (low achieving Anglos and minority students) seem to change their attributions about their performance from negative ones to more ego-enhancing ones. This seems to result in better achievement and improved self-esteem for these students.

In order to focus more directly on some of the assumed mechanisms underlying the impact of jigsaw learning on prosocial behavior and classroom performance, two laboratory experiments were designed and conducted. In these experiments, students were removed from the hustle and bustle of the classroom and tested under more controlled, laboratory conditions. In one such study, Stephan, Kennedy and Aronson (1977) set up a situation in which 6th grade students succeeded or failed at a motor task (throwing bean bags at a target) that was performed cooperatively, competitively, or independently.

Recall that in previous research it was found that individuals make dispositional attributions to explain their own success and situational attributions to explain their failures. Stephan, et al, demonstrated that the world is a little more complicated than that. They found that whether or not ego-enhancing attributions were made depended on the type of interaction and whether or not the partner was a friend. For example, in the competition condition with a friend, the usual ego-enhancing attribution process was reversed such that winners were less likely than losers to attribute their performance on the task to skill. It looks as though people are reluctant to "lord it over" a friend whom they beat - at least temporarily. Another similar experiment was designed to look more closely at the type of attributions made by college students in interdependent, cooperative and competitive interactions with other students (Stephan, Presser, Kennedy and Aronson, 1977). Again, ego-enhancing attributions were generally made by the student to explain his/her success or failure. In the cooperative and interdependent conditions similar attributions were made for the partner's success or failure (i.e., dispositional attribution for success, etc.). However, in the competition condition the process was reversed such that partner failure was attributed dispositionally and success situationally. In short, cooperation leads an individual to treat his partner in the same kind of ego-enhancing manner in which he treats himself. Competition created a harsh difference.

Thus, firm evidence exists for the earlier conjecture that an interdependent, cooperative environment can change the self-defeating attributions and negative self-fulfilling prophecies made by the

students who are considered by others and themselves as failures. This line of research lends credence to the model developed earlier: that poor performance in a competitive or hostile environment can trigger mechanisms (negative disposition attributions by others and by the person her/himself) which, together with feelings of ineffectiveness (from the poor performance itself), can combine to perpetuate poor performance. The research discussed above demonstrates one way of reversing this trend not only by enhancing the performance of the individual but by changing the attributions that tend to get made as a function of a cooperative (as opposed to a competitive) environment.

The reader will recall that some of the results of the initial jigsaw study (Blaney, et al, 1977) were not as clear for the Mexican American students (e.g., their liking for school was greater in traditional classes). In addition, there have been a few criticisms of the Blaney, et al, research. For example, it is possible that there may not have been adequate controls to reduce Hawthorne effects, and there were no control classes that utilized group methods other than interdependent techniques. Therefore, additional research was carried out to take into account the above limitations as well as to investigate more closely the effects of interdependent learning on the attitudes of Mexican American students.

In his Ph.D. dissertation, Geffner (1978) investigated the attitudes students have about themselves, about other students, and about school. One of the major goals of this field experiment was to examine the students' self-esteem in more depth than had been done previously. His research was carried out in Santa Cruz County, California, where the composition of several of the elementary schools

is approximately 50% Anglo and 50% Mexican American. In addition, these students and their schools have been integrated for many years. Thus this research provided additional insight into the effects of cooperation on inter-ethnic group relations and attitudes.

Four classes of fifth grade students were taught about three hours per week for eight weeks with the jigsaw method of interdependent learning, two classes were taught with various group techniques other than interdependence, two classes were taught somewhat innovatively but without specific group techniques, and two classes were taught in the more traditional manner. Methodological procedures were established to control for possible teacher effects, school effects, Hawthorne effects, and sampling bias. The curriculum was basically the same for all classes.

Geffner used a slightly modified version of the questionnaire used in the research of Blaney, et al (1977). To investigate self-esteem in more depth, a shortened and modified version of "A Pictorial Self-Concept Scale for Children" (Bolea, Felker and Barnes, 1971) was also used. This scale consists of cartoon-like pictures of stick figures in various types of situations, and includes five dimensions of self-esteem deemed important by the students themselves: scholastic abilities, athletic abilities, physical appearance, social interactions, and family interactions. The attitude questionnaire and the pictorial self-esteem measure were administered to the students before any interventions were made and again at the conclusion of the experiment.

The results of the questionnaire responses indicated that the students in the jigsaw classes improved or maintained positive attitudes about school, about themselves, about their peers, and about their academic abilities. The students taught with other group

techniques tended to maintain the same positive attitudes about their academic abilities, and improved somewhat in their attitudes about school, their classmates, and themselves. The innovative control classrooms showed some improvement in the students' confidence in their academic abilities, but showed a decrease in the students' attitudes about school, their classmates, and themselves. The students in the traditional classes showed a very slight improvement in their attitudes about school, but they also showed a decline in their attitudes about their academic abilities, about themselves, and about their peers. The differences between the more cooperative and the more traditional classes were significant for "attitudes toward classmates" and "attitudes about themselves" (general self-worth). In addition, the smaller gain in liking for school found in Blaney's, et al, research for Mexican American students taught by the jigsaw compared to those taught in the traditional manner was not replicated in the Geffner research. The Mexican American students in the Texas schools were strongly in the minority and were in a new situation, and this combined with some language barriers probably accounted for Blaney's, et al, results. However, the Mexican American students in the Santa Cruz County schools were much more familiar and comfortable with their school environment since they comprised nearly half of the population and have been in this situation for a few years.

Although Geffner's results for the attitude questionnaire were in the same direction as those of Blaney, et al, he did not obtain as much of an increase for his jigsaw students in general self-worth, confidence in academic ability, and attitudes toward classmates. It appears that this was due to the Santa Cruz County schools already

being somewhat innovative and cooperative in structure, philosophy, and technique in comparison to the Austin, Texas, schools. Even the more traditional classrooms in Santa Cruz are not as competitive or as rigid as the usual traditional classes. For the pictorial measure of self-esteem, he found that interdependent learning either maintained or improved the students' self-esteem while the more traditional methods of teaching generally produced a drop in self-esteem. These results were significant for the "social interaction" and "athletic ability" self-image dimensions; trends in the same direction, which approached statistical significance, were obtained for the "family" and "scholastic ability" dimensions. The students in classes taught by other group techniques also showed gains in some of the dimensions of self-esteem (e.g., "athletic ability" and "scholastic ability"). Thus, the cooperative conditions in comparison to the more traditional ones improved the students' self-images regarding their social interactions and their scholastic abilities and even generalized to improve their confidence in athletic abilities and family interactions. Positive feedback, support, and successful experiences of many of the students in the cooperative classes probably led to the generalized improvement in self-esteem and feelings of competence.

Another important area of interest to social psychologists and educators involves the reduction of inter-ethnic prejudice. Research in social psychology has indicated that interdependence seems to reduce inter-group hostilities and tensions (e.g., Sherif, Harvey, Hood, White, 1961). Theoretically, then, the jigsaw method of learning should reduce inter-ethnic prejudice in the classroom. To test this

assumption, Geffner (1978) also studied the inter-ethnic and intra-ethnic perceptions of Mexican American and Anglo students. The results of his research indicate that the interdependent and cooperative methods of learning yielded some important beneficial outcomes. For example, in the cooperative classes there was significant improvement for the Anglos' perceptions of how Mexican American students view themselves. A similar pattern also emerged for Anglo and Mexican American students' perceptions of how the Mexican Americans view their classmates. However, in traditional classes, there was no improvement in the Anglos' perceptions of Mexican Americans, but there was a decline in the Mexican Americans' opinions of other Mexican Americans.

Geffner also obtained significant findings for some of the perceptions of Anglo students. The jigsaw and "group" conditions showed improvement in their students' perceptions of Anglos' academic abilities, while the traditional condition showed a substantial decrease. There was also a difference between traditional and cooperative classes for perceptions of Anglos' self-worth, with certain students in the cooperative classes improving while similar students in traditional classes declined in their views of Anglos.

In summarizing the responses to all three questionnaires for the categories of "academic abilities" and "attitudes toward classmates," Geffner pointed out some of the advantages that were gained by the students working in cooperative classrooms. He found that being in interdependent classrooms tended to raise Mexican American students' perceptions of the academic abilities of Anglos, and tended to maintain the remaining inter-ethnic and intra-ethnic perceptions as well

as self-perceptions in this category. However, being in traditional classrooms tended to lower the self-perceptions of all students as well as to lower the Mexican American students' perceptions of the academic abilities of Anglos and other Mexican Americans. In addition, being in the interdependent classes raised the Anglo students' perceptions of other Anglos and raised the Mexican American students' perceptions of other Mexican Americans with regard to attitudes about classmates. On the other hand, being in traditional classes tended to lower the Mexican American students' perceptions of Anglos and other Mexican Americans.

Cooperation and Desegregation

The competitive environment of the typical traditional classroom may serve to retard some of the expected beneficial effects of desegregated schools. In 1954, when the Supreme Court decided that schools must be desegregated, it was expected that desegregation would have beneficial effects on the self-esteem and performance of ethnic children and on the reduction of inter-ethnic prejudice. But recent, thorough reviews of research on the effects of desegregation show few if any benefits (St. John, 1975; Miller, 1977). Indeed, if anything, there is some evidence for a reduction in self-esteem among ethnic children following desegregation.

It is our hunch that a highly competitive situation works a special hardship on ethnic children. Many of these children come from ghetto schools where the atmosphere and facilities are sub par. They are suddenly forced to compete with middle class Anglo children who are better prepared and more accustomed to the competitive process. The situation is one that makes poor performance likely -

which, as we have seen, can have a deleterious effect on self-esteem as well as on feelings of friendship across ethnic lines.

What happens when a cooperative structure is substituted for a competitive one? In recently desegregated schools in Colorado, Weigel, Wiser and Cook (1975) instituted some cooperative techniques for four months and assessed the effects on cross-ethnic relations and attitudes. They did find more cross-ethnic helping behavior in their experimental classes as compared to the traditional control classes, and they also found some positive attitudinal changes among the ethnic groups (Anglo, Black and Mexican American), but the effects were small. One of the problems with this procedure was that within the classroom, cooperative groups were encouraged to compete against one another. As the researchers pointed out, the competition between the groups may have negated the cooperation within them, thus weakening the beneficial effects. The research of Blaney, et al (1977) and Geffner (1977) lend strong support to the view that cooperation in the classroom improves many prosocial behaviors; it enchances certain aspects of the students' self-esteem, improves their attitudes toward their classmates, enhances their self-confidence, and improves some of the inter-ethnic and intra-ethnic perceptions for both Anglos and Mexican Americans. These changes are important for students because they seem to promote ego-enhancing attributions for the students themselves, as well as for their peers. The resulting positive self-fulfilling prophecies should theoretically improve academic achievement and self-satisfaction in the long run, but these still need to be investigated. In addition, it appears that the groundwork for reducing prejudice in the classroom has been established, assuming that the cooperative interaction among students

is sustained. It also appears that the jigsaw technique of interdependent learning is most effective in classes that were previously taught in a traditional manner, especially in situations where there is inter-ethnic interaction (e.g., in newly desegregated schools).

Cooperation and Empathy

Why does cooperative interaction enhance prosocial behavior in the classroom? It is our belief that one of the crucial mechanisms underlying the effects of cooperative behavior on liking, positive attributions, self-esteem and performance - is empathy. Our reasoning is based in part upon Piaget's (1928) analysis. According to Piaget's theory, children learn and develop by interacting with their environment. Through the active process of resolving social and cognitive conflicts, children construct their ways of viewing the world. If children engage in a cooperative rather than a competitive process, the nature of their interaction should increase their abilities to take one another's perspective. More specifically, Piaget suggested that egocentrism and role taking are negatively correlated in children's development; i.e., social interactions that enhance role taking would diminish egocentrism, since the dovetailing of responses involved in effective social interaction demands that each participant modify his or her intended behavior in anticipation of the other's reaction to this behavior. Since Piaget also suggested that egocentrism can be overcome by dissonant information in verbal exchanges with peers, and that social interaction allows a child to recognize the difference between his or her own preoccupations and the concerns of others, then it seems likely that the cooperative process would provide a framework for enhancing

social development in a structural sense.

This hypothesis was recently put to the test by Bridgeman (1977) in her Ph.D. dissertation. Specifically, she assessed the relationship between cooperative learning and role taking abilities with 120 fifth grade students from three Santa Cruz County elementary schools. A revised version of Chandler's (1973) role taking cartoon series was used to assess the students' perspective-taking abilities. Each of the cartoons depicts a central character caught up in a chain of psychological cause and effect, such that the character's subsequent behavior was shaped by, and fully comprehensible only in terms of, the events preceding them. In one of the sequences, for example, a boy who had been saddened by seeing his father off at the airport began to cry when he later received a gift of a toy airplane similar to the one which had carried his father away. Midway into each sequence, a second character is introduced in the role of a late-arriving bystander who witnessed the resultant behaviors of the principle character, but was not privy to the antecedent events which brought them about. It is possible to place the subject in a privileged position relative to the story character whose role the subject is later asked to assume, and to specify the degree to which the subject is able to set aside facts known only to him or herself and adopt a perspective measurably different from his or her own. Thus, students in the cooperative classrooms were better able to put themselves in the bystanders' place. However, students in the control classroom made significantly more egocentric statements on behalf of the role of the bystander. For example, when the mailman delivered a toy airplane to the little boy, students in traditional classrooms tended to assume that the mailman knew the boy would

cry; that is, they believed that the mailman knew that the boy's father had recently left town on an airplane - simply because they (the subjects) were privy to this information. On the other hand, students who had participated in a jigsaw group were much more successful at taking the mailman's role - realizing that the mailman could not possibly have predicted that the boy would cry upon receiving a toy airplane. The role taking tasks were administered to all students before and after eight weeks of classroom learning. The cooperative, interdependent classes constituted the experimental condition and the more traditional, teacher-centered classes constituted the control condition.

The results from this study (Bridgeman, 1977) are consistent with both Piaget's assumptions and the assumptions underlying the cooperative process. Both role taking of rational thought (considering the logical perspective of another) and role taking of affective thought (considering the emotional perspective of another) showed a significant increase after the cooperative experience. There was no change in the role taking abilities of the students in the control classrooms who were taught in more traditional ways. Thus, in addition to clarifying the social developmental importance of cooperative learning, the results of this experiment demonstrate that the cooperative paradigm's role-taking effects transfer from a classroom setting to a non-classroom setting. Specifically, the results demonstrate that the effects of the curriculum-incorporated cooperative learning experience carried over into the non-curriculum tasks of Chandler's role taking stories.

Further, these data confirm our notion that empathic role taking may be a key ability which mediates other prosocial behaviors. It seems logical to assume that, if cooperative learning (which requires role taking) enhances role taking, and if the process of role taking is essential to the development of a sense of self (Mead, 1934), then cooperation should enhance self-esteem as well. In accordance with Mead, Piaget theorizes that the ability to role take is necessary to the development of a consciousness of self, for an egocentric mind cannot be conscious of its own processes. It also follows that role taking should enhance liking for others. In short, once one has the ability to see the world from another's perspective, it follows that one will see that person in a more positive, more differentiated, less stereotypic way. This process seems to work according to a feedback principle. That is, it also seems reasonable that a person who feels secure about him or herself could better understand the perspective of others. If one is able, therefore, to take the role of another while enhancing one's self-esteem, it would seem then that one might become more tolerant and less prejudiced toward others.

There are still many unexplored aspects of cooperative learning that need to be addressed, such as: long term effects, sex differences, cognitive development, prejudice reduction, motivation, power distribution and stereotyping, to name a few. Our results thus far seem promising. It is clear to us that cooperation does effect prosocial behavior and should be given serious consideration by educators and social policy makers.

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